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EXAMINER	
LEUNG, CHRISTINA Y	

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2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/784,972	Applicant(s) GERSTEL ET AL.
	Examiner Christina Y. Leung	Art Unit 2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 february 2004 (w/ preliminary amdt).

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 12-17 and 30-39 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 14 is/are allowed.

6)☒ Claim(s) 12,13,15-17,32,33,35 and 37-39 is/are rejected.

7)☒ Claim(s) 12,15,30,31,34 and 36 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 February 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2-25-04.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Up

DETAILED ACTION

Claim Objections

1. Claims 12 and 15 are objected to because of the following informalities:

Claim 12 recites "a line side *receiver* port" in line 3 of the claim. Examiner respectfully suggests that Applicants amend this phrase to "a line side *receive* port" so that the terminology in consistent within this claim and also throughout the other claims.

Claim 15 recites "to *n* preceding node" (sic) in line 8 of the claim. Examiner respectfully suggests that Applicants amend this phrase to "to *a* preceding node" since the use of "n" in this particular phrase appears to be a typographical error (although the claim also recites "n optical nodes").

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 13, 16, 17, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi (US 5,060,224 A).

Regarding claim 13, Konishi discloses an optical node 70a (Figure 4) comprising:

a line side transmit interface for transmitting one or more of a plurality of optical wavelengths (i.e., the output of node 70a, which outputs a transmission onto line L4);

an associated line side receive interface for receiving one or more of a plurality of optical wavelengths (i.e., the input of node 70a, to which a received signal from L4 is input); and

a loopback mechanism (optical switch 71a) for looping back one or more of the plurality of optical wavelengths received at the line side receive interface to the line side transmit interface without converting the optical wavelengths to electrical form (Figure 4 shows a dashed line in switch 71a which represents a loopback state for connecting an optical wavelength received at the line side receive interface to the line side transmit interface without converting it to electrical form; column 4, lines 12-17).

Examiner notes that claim 13 recites a transmit interface and a receive interface but does not specifically recite a transmitter or a receiver.

Regarding claim 37, Konishi further discloses that the loopback mechanism 71a comprises a 2x2 optical switch having a first input port (i.e., the port shown at the upper left side of switch 71a in Figure 4) connected to receive at least one of the optical wavelengths received at the line side receive interface,

the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port (the port shown at the upper right side of switch 71a) or from a second output port (the port shown at the lower left side of switch 71a), the optical switch further having a second input port (the port shown at the lower right side of switch 71a).

Regarding claim 16, Konishi discloses an optical node 70a (Figure 4) comprising:

a line interface having a line side transmit port for transmitting an optical signal (the output of node 70a, which outputs a transmission onto line L4) and a line side receive port for receiving an optical signal (the input of node 70a, to which a received signal from L4 is input);

at least one transponder (optical transmitting and receiving circuit 75a) having a transmit output terminal for transmitting an optical signal and a receive input terminal for receiving an optical signal (the circuit 75a transmits optical signals to the switch 71a and receives optical signals from the switch 71a; column 3, lines 43-47 and lines 62-65); and

at least one optical switch 71a having four terminals, with the first terminal connected to the line side receive port and the second terminal connected to the line side transmit port of the line interface, and the third terminal connected to the receive input terminal and the fourth terminal connected to the transmit output terminal of the transponder (Figure 4 shows the four terminals of switch 71a, wherein the first and second terminals are shown at the top of the switch 71a in Figure 4 and are connected directly to the line L4; and wherein the third and fourth terminals are shown at the bottom of the switch 71a in Figure 4 and are connected directly to the transponder 75a),

the one optical switch 71a having a normal state (column 4, lines 40-44 and lines 66-68; column 4, lines 1-2) in which a first optical path is provided from the first terminal to the third terminal of the one optical switch to provide an optical connection from the line side receive port of the line interface to the receive input terminal of the transponder (i.e., the path represented by the solid straight line on the left side in switch 71a in Figure 4), and a second optical path is provided from the second terminal to the fourth terminal of the optical switch to provide an optical connection from the transmit output port of the transponder to the line side transmit port

of the line side interface (i.e., the path represented by the solid straight line on the right side in switch 71a),

the one optical switch 71a having a loopback state (column 4, lines 12-17) in which a third optical path is provided from the first terminal to the second terminal of the one optical switch to loopback the optical signal received at the line side receive port to the line side transmit port of the line interface (i.e., the path represented by the dashed curved line at the top of switch 71a), and a fourth optical path is provided from the third terminal to the fourth terminal of the one optical switch to loopback the optical signal transmitted from the transmit output terminal to the receive input terminal of the transponder (i.e., the path represented by the dashed curved line at the bottom of switch 71a).

Regarding claim 17, Konishi discloses an optical node comprising:

a line interface having a line side transmit port for transmitting an optical signal (the output of node 70a, which outputs a transmission onto line L4) and a line side receive port for receiving an optical signal (the input of node 70a, to which a received signal from L4 is input);

at least one transponder (optical transmitting and receiving circuit 75a) having a transmit output terminal for transmitting an optical signal and a receive input terminal for receiving an optical signal (the circuit 75a transmits optical signals to the switch 71a and receives optical signals from the switch 71a; column 3, lines 43-47 and lines 62-65); and

at least one optical switch 71a for looping back the optical signal received at the line side receive port to the line side transmit port of the line side interface (the path represented by the dashed curved line at the top of switch 71a), and for looping back the optical signal transmitted

from the transmit output terminal to the receive input terminal of the transponder the path represented by the dashed curved line at the bottom of switch 71a),

the optical switch having first and second switch terminals connected to the line side transmit port and line side receive port, respectively, of the line interface (the first and second terminals are shown at the top of the switch 71a in Figure 4 and are connected directly to the line L4), and having third and fourth switch terminals connected to the transmit output terminal and the receive input terminal, respectively, of the transponder (the third and fourth terminals are shown at the bottom of the switch 71a in Figure 4 and are connected directly to the transponder 75a).

4. Claims 13, 15, 32, 33, 35, and 37-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (US 5,717,795 A).

Regarding claim 15, Sharma et al. disclose an optical network (Figures 15 and 27) comprising:

n, where n is an integer, optical nodes (such as A1, Cn, and C1 shown in Figure 27; column 11, lines 32-45), including a source node for providing an optical signal, and a destination node for receiving the optical signal (a signal may be provided from a source node A1 to a destination node C1, for example);

optical fibers B1 and B2 for optically connecting the n nodes, and for carrying the optical signal from the source node to the destination node via intermediate nodes; and

an optical loopback circuit (switches such as switches A18, A19, C111, and C112 shown in Figure 27) for looping back the optical signal at any one of the n nodes to a preceding node

without converting the optical signal to an electrical signal (Figure 28C shows a loopback configuration of one of the switches; column 11, lines 39-60).

Regarding claim 38, Sharma et al. further disclose a line side transmit interface (i.e., an output from node C1 that sends signals to main line B1) for transmitting one or more of a plurality of optical wavelengths to the optical nodes;

an associated line side receive interface (i.e., an input to node C1 from protection line B2) for receiving one or more of a plurality of optical wavelengths from the optical nodes;

a second line side transmit interface (i.e., an output from node C1 that sends signals to protection line B2) for transmitting one or more of a plurality of optical wavelengths to the optical nodes; and

an associated second line side receive interface (i.e., an input to C1 from main line B1) for receiving one or more of a plurality of optical wavelengths from the optical nodes,

wherein the optical loop-back circuit comprises a 2x2 optical switch (such as switch C111, connected to what may be considered "first" line side transmit and receive interfaces on the left side of the node C1 in Figure 27) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch).

Although Figure 27 does not explicitly indicate which of the four interfaces of node C1 are input/receive interfaces and which are output/transmit interfaces, Sharma et al. clearly disclose that the node is designed to transmit and receive signals on line B1 or line B2 and

therefore disclose that the four interfaces of the node accordingly comprise two transmit interfaces and two receive interfaces (column 11, lines 32-67), wherein the first transmit/receive interfaces are shown on one side of node C1 in Figure 27 and the second transmit/receive interfaces are shown on the other side of node C1.

Regarding claim 39, Sharma et al. disclose that the optical loopback circuit further comprises a second 2x2 optical switch (such as switch C112, connected to what may be considered "second" line side transmit and receive interfaces on the left side of the node C1 in Figure 27) having a first input port connected to receive at least one of the optical wavelengths received at the second line side receive interface, the second optical switch being adapted to output the received optical wavelength from a first output port to the second line side transmit port or from a second output port, the second optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch).

Regarding claim 13, Sharma et al. disclose an optical node (such as node C1 in Figure 27) comprising:

a line side transmit interface (i.e., an output from node C1 that sends signals to main line B1) for transmitting one or more of a plurality of optical wavelengths;

an associated line side receive interface (i.e., an input to node C1 from protection line B2) for receiving one or more of a plurality of optical wavelengths; and

a loopback mechanism (switches C111 and C1112) for looping back one or more of the plurality of optical wavelengths received at the line side receive interface to the line side transmit interface without converting the optical wavelengths to electrical form (Figure 28C shows a loopback configuration of the switches).

Again, although Figure 27 does not explicitly indicate which of the four interfaces of node C1 are input/receive interfaces and which are output/transmit interfaces, Sharma et al. clearly disclose that the node is designed to transmit and receive signals on line B1 or line B2 and therefore disclose that the four interfaces of the node accordingly comprise two transmit interfaces and two receive interfaces (column 11, lines 32-67), wherein each side of node C1 would include one interface for transmitting and one interface for receiving.

Regarding claim 32, Sharma et al. further disclose:

a second line side transmit interface (i.e., an output from node C1 that sends signals to protection line B1) for transmitting one or more of a plurality of optical wavelengths; and

an associated second line side receive interface (i.e., an input to node C1 from main line B1) for receiving one or more of a plurality of optical wavelengths,

wherein the loopback mechanism (switches C111 and C1112) is operable to loop back one or more of the plurality of optical wavelengths received at the second line side receive interface to the second line side transmit interface without converting the optical wavelengths to electrical form (Figure 28C shows a loopback configuration of the switches).

As already discussed above, the first transmit/receive interfaces are shown on one side of node C1 in Figure 27 and the second transmit/receive interfaces are shown on the other side of node C1.

Regarding claim 33, Sharma et al. disclose wherein the loopback mechanism comprises a 2x2 optical switch (such as switch C111, wherein the transmit/receive interfaces on the right side of node C1 are considered first transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the

optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch).

Regarding claim 35, Sharma et al. further disclose that the loopback mechanism further comprises a second 2x2 optical switch (such as switch C112, wherein the transmit/receive interfaces on the left side of node C1 are considered second transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the second line side receive interface, the second optical switch being adapted to output the received optical wavelength from a first output port to the second line side transmit port or from a second output port, the second optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch)..

Regarding claim 37, Sharma et al. further disclose that the loopback mechanism comprises a 2x2 optical switch (such as switch C111, wherein the transmit/receive interfaces on the right side of node C1 are considered first transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch).

5. Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by DeCusatis et al. (US 6,356,367 B1).

Regarding claim 12, DeCusatis et al. disclose an optical line terminal (Figure 4), comprising:

a line interface having a line side transmit port for transmitting an optical signal and a line side receive port for receiving an optical signal ("optical out" and "optical in" shown on the right side of node 20, for example);

a port side interface having a port side transmit port for transmitting an optical signal and a port side receive port for receiving an optical signal ("optical out" and "optical in" shown on the left side of node 20, for example; Figure 3 shows how the node 20 in Figure 4 may be "Repeater #1" connected to a "Device #1" on its port side); and

a transponder (lasers TX1 and TX2, and optical receivers RX1 and RX2) connected to the line side transmit port and the line side receive port of the line side interface, and also connected to the port side transmit port and port side receive port of the port side interface, the transponder including a loopback mechanism (the pathways labeled "EWRAP") for one of looping back the received optical signal at the line side receive port to the line side transmit port and looping back the received optical signal at the port side receive port to the port side transmit port. (column 6, lines 45-67).

Allowable Subject Matter

6. Claim 14 is allowed.

7. Claims 30, 31, 34, and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art, including DeCusatis et al., Sharma et al., and Konishi do not specifically disclose or fairly suggest a system with all the elements and limitations recited in claims 14, 30, 31, 34, or 36 (and including the elements and limitations of any claims on which they depend). Although DeCusatis et al., Sharma et al., and Konishi each generally disclose nodes including various loopback mechanisms and transmit/receive interfaces, none of them specifically further disclose or suggest the specific combination and connection of elements recited in those claims.

Regarding claims 30 and 31 in particular, DeCusatis et al. disclose a system as discussed above with regard to claim 12, but they do not specifically further disclose the combination of elements and limitations recited in claims 30 and 31, particularly four switches as recited in claim 30, or a multiplexer between the transponder and the port side transmit and receive ports as recited in claim 31.

Regarding claims 34 and 36 in particular, although Sharma et al. disclose multiplexers and demultiplexers (such as elements C11 and C15 in node C1 in Figure 27), they do not specifically disclose the arrangement of elements recited in claims 34 or 36 (including the elements and limitations of the claims on which claims 34 and 36 depend), specifically wherein a multiplexer/demultiplexer is connected between the line side transmit and receive ports and the 2x2 optical switch or between the second line side transmit and receive ports and the second 2x2 optical switch (such as illustrated in Applicants' Figure 12). Examiner notes that the claims specifically recite connections that distinguish between the first and second line side transmit and receive ports as well as the first and second 2x2 optical switches, and Sharma et al. disclose that the system may include a multiplexer such as C11 between what may be considered the first optical switch C111 and the *second* line side transmit and receive ports on the *left* side of node

C1, but not between the first switch C111 and the *first* interfaces, which are located on the right side of node C1.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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